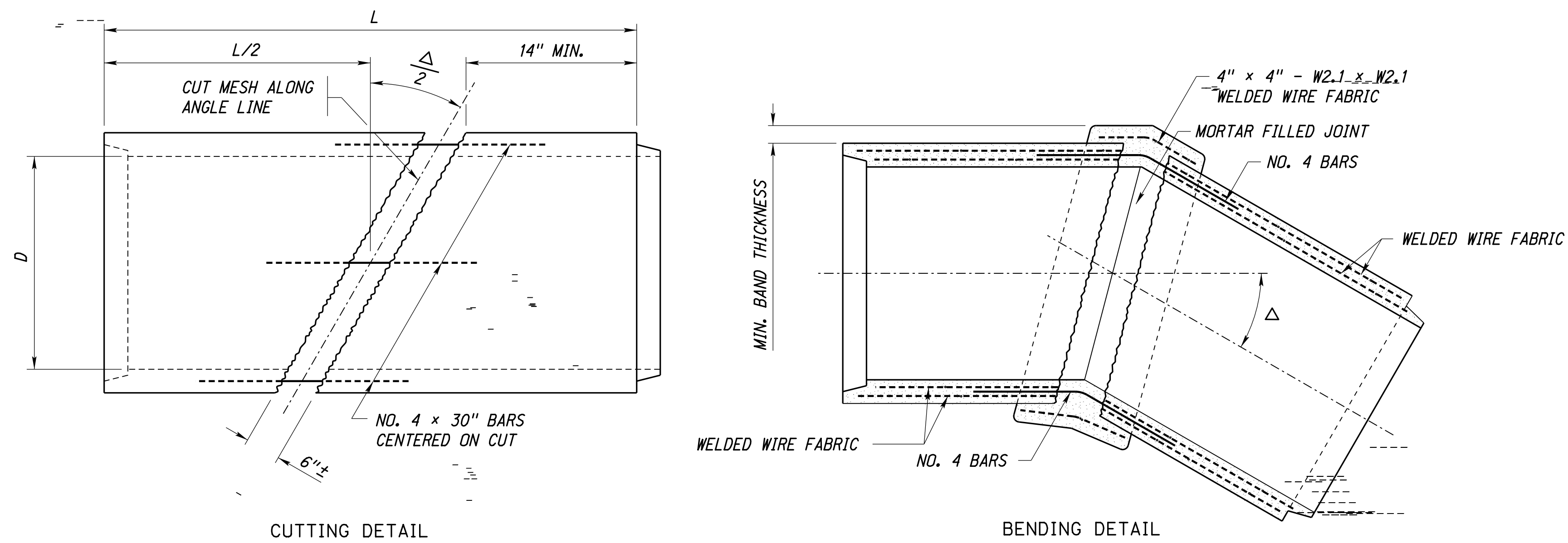


SIDE ELEVATION

END ELEVATION

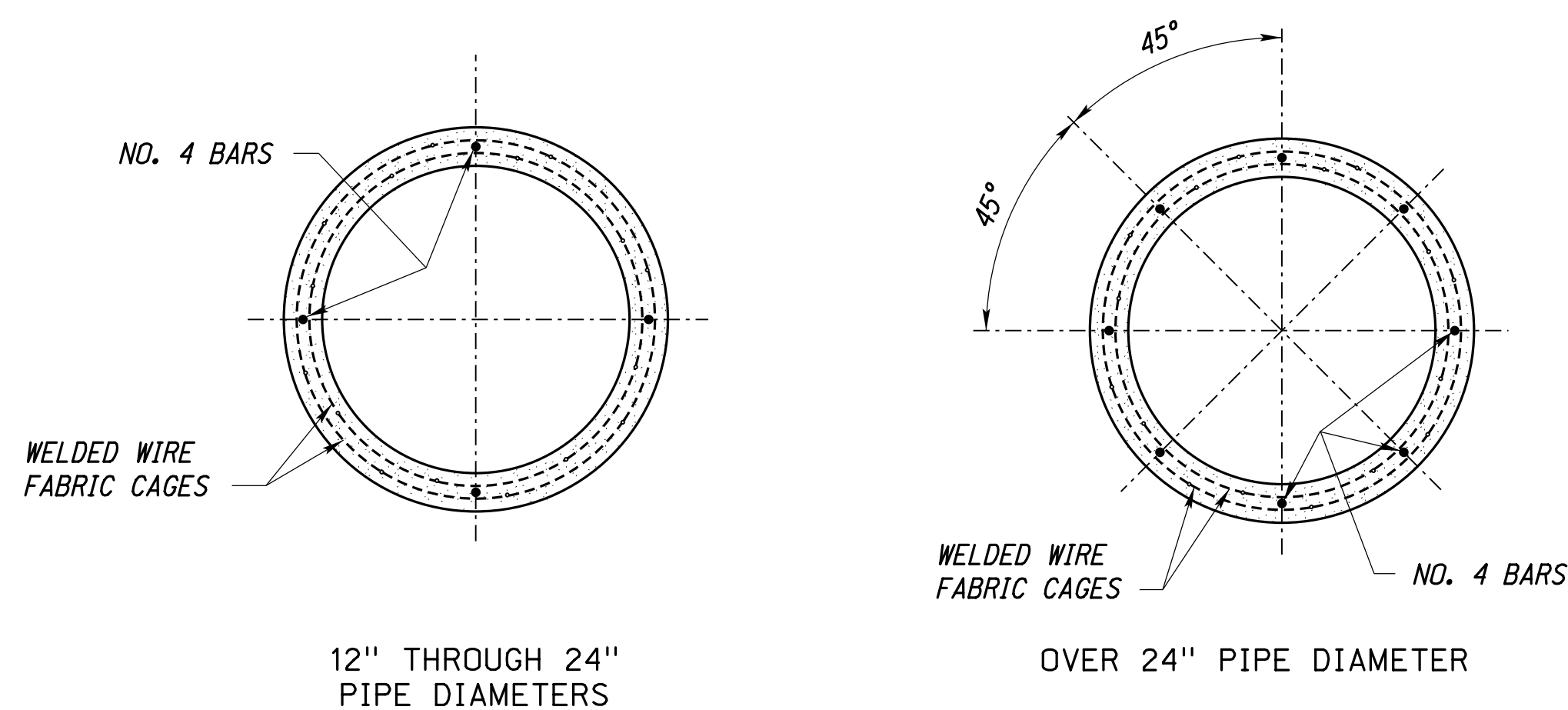
DETAILS OF COLLARS



CUTTING DETAIL

BENDING DETAIL

DETAILS OF CONCRETE ELBOWS



12" THROUGH 24" PIPE DIAMETERS

OVER 24" PIPE DIAMETER

BAR LOCATION DETAILS

DATA FOR PRECAST ELBOWS			
SIZE OF PIPE "D"	MINIMUM BAND THICKNESS	Δ MAXIMUM	
		L=8'	L=7 1/2'
12"	1"	90°	90°
15"	1"	90°	90°
18"	1"	90°	90°
21"	1"	90°	90°
24"	1 1/8"	90°	90°
27"	1 1/8"	90°	90°
30"	1 1/4"	90°	90°
36"	1 3/8"	81°	90°
42"	1 1/2"	73°	90°
48"	1 3/4"	66°	88°
54"	2"	60°	81°
60"	2"	55°	75°

SCHEDULE OF BARS FOR COLLAR					
SIZE OF PIPE "D"	BAR SIZE	NUMBER OF BARS			
		TRANS-VERT	TOP	ONE SIDE	BOTTOM
12"	NO. 4	12	4	2	4
15"	NO. 4	12	4	2	4
18"	NO. 4	12	4	2	4
21"	NO. 4	12	4	2	4
24"	NO. 4	12	4	2	4
27"	NO. 4	12	4	2	5
30"	NO. 4	12	4	2	5
36"	NO. 4	12	4	2	5
42"	NO. 4	12	5	3	6
48"	NO. 4	12	5	3	6
54"	NO. 4	12	5	3	6
60"	NO. 4	12	5	3	6

DATA FOR COLLARS			
SIZE OF PIPE "D"	Δ	CONCRETE (CU. YDS.)	REINF. STEEL (LBS.)
12"	0°	0.30	32
	15°	0.33	33
	30°	0.36	36
	45°	0.39	37
15"	0°	0.36	35
	15°	0.40	36
	30°	0.43	38
	45°	0.47	40
18"	0°	0.42	38
	15°	0.49	41
	30°	0.56	44
	45°	0.64	46
21"	0°	0.47	40
	15°	0.55	42
	30°	0.64	46
	45°	0.74	48
24"	0°	0.53	43
	15°	0.63	45
	30°	0.74	49
	45°	0.86	51
27"	0°	0.57	45
	15°	0.70	48
	30°	0.84	52
	45°	0.99	55
30"	0°	0.63	49
	15°	0.79	53
	30°	0.96	57
	45°	1.14	61
36"	0°	0.77	53
	15°	1.01	58
	30°	1.26	63
	45°	1.53	68
42"	0°	0.96	65
	15°	1.32	72
	30°	1.69	80
	45°	2.09	91
48"	0°	1.16	68
	15°	1.66	77
	30°	2.19	86
	45°	2.75	95
54"	0°	1.34	75
	15°	2.01	84
	30°	2.70	95
	45°	3.44	106
60"	0°	1.54	77
	15°	2.39	89
	30°	3.28	100
	45°	4.23	113

NOTES:

THE DIMENSIONS FOR CONCRETE PIPE SHOWN ON THIS PLAN ARE FOR CLASS III REINFORCED CONCRETE PIPE, AASHTO DESIGNATION M170, WALL "B".

ALL QUANTITIES ARE BASED ON DIMENSIONS SHOWN ON THIS PLAN. NO ADJUSTMENTS WILL BE MADE IN THESE QUANTITIES IF OTHER STRENGTH STANDARD PIPE IS FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS OR IF COLLARS ARE USED ON PIPE OTHER THAN CONCRETE.

WHEN A CONCRETE COLLAR, CONNECTING EXISTING AND NEW CONCRETE PIPE, IS CONSTRUCTED WITH A BEND, IT SHALL BE CONSIDERED AS A COLLAR NOT AN ELBOW.

ALL REINFORCING STEEL USED SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM DESIGNATIONS A615/A615M, GRADE 60. ALL BAR DESIGNATIONS ARE IN CUSTOMARY U.S. UNITS.

ALL CONCRETE USED SHALL BE CLASS 47B-3000.

FOR A SINGLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING BARS ON THE OUTSIDE OF THE CAGE.

FOR A DOUBLE LINE OF REINFORCING WIRE MESH, TIE REINFORCING WIRE MESH ON THE INSIDE OF THE OUTSIDE CAGE.

REINFORCING BARS SHALL BE LAPPED WHERE THE BEND IS MADE.

REINFORCING WIRE MESH SHALL BE LAPPED AND TIED WHERE THE BEND IS MADE.

WELDED WIRE FABRIC OR EQUAL SHALL BE LAPPED 12" AT SPLICES.

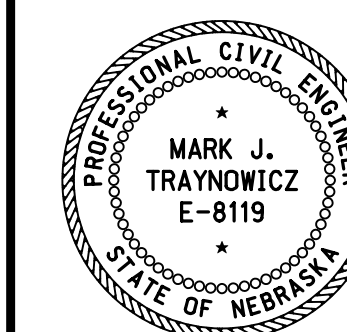
THE ORIENTATION OF THE PIPE SHALL BE MARKED WHEN CASTING TO ASSURE ADEQUATE REINFORCING BAR EMBEDMENT AND PROPER ALIGNMENT WHEN CUTTING AND ROTATING.

ALL PIPE DIMENSIONS SHOWN ARE NOMINAL.

R5	JAN 18	NDOR BORDER TO NDOT BORDER
R4	JAN 07	REMOVED REFERENCE TO CONC. AX-3000
R3	AUG 99	COMPUTER FILE/CHANGES
REV. NO.	DATE	DESCRIPTION OF REVISION

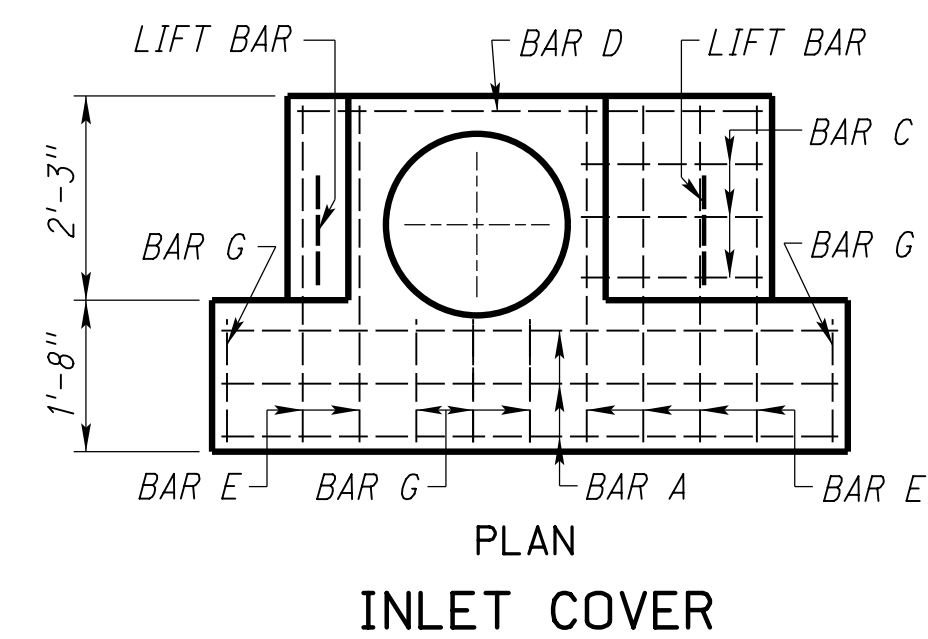
NEBRASKA DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN NO. 425-R5  
**COLLARS AND ELBOWS  
FOR CONCRETE PIPE**

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:

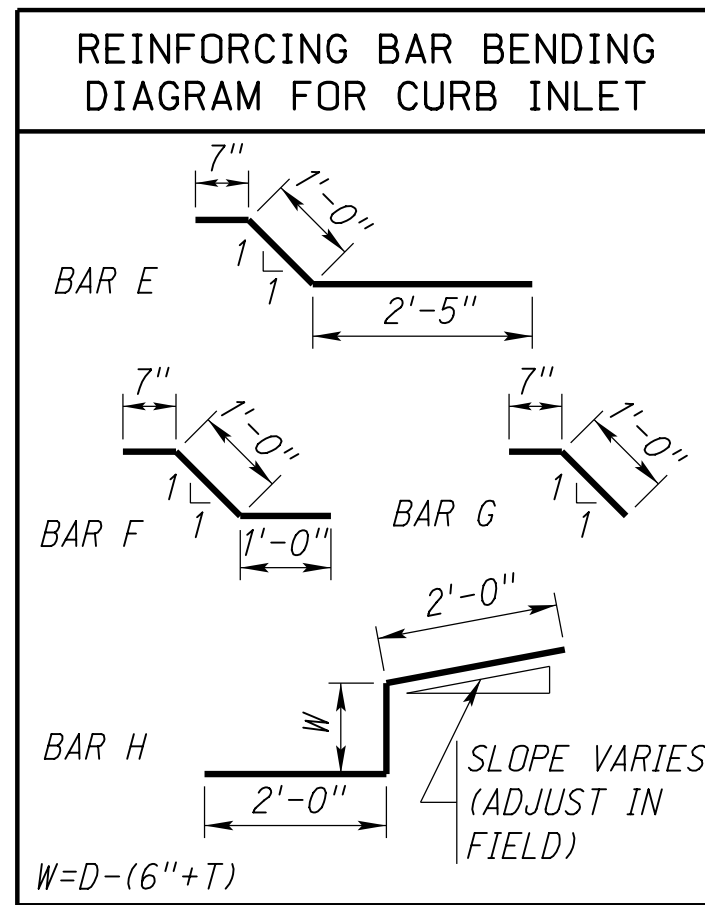


DATE

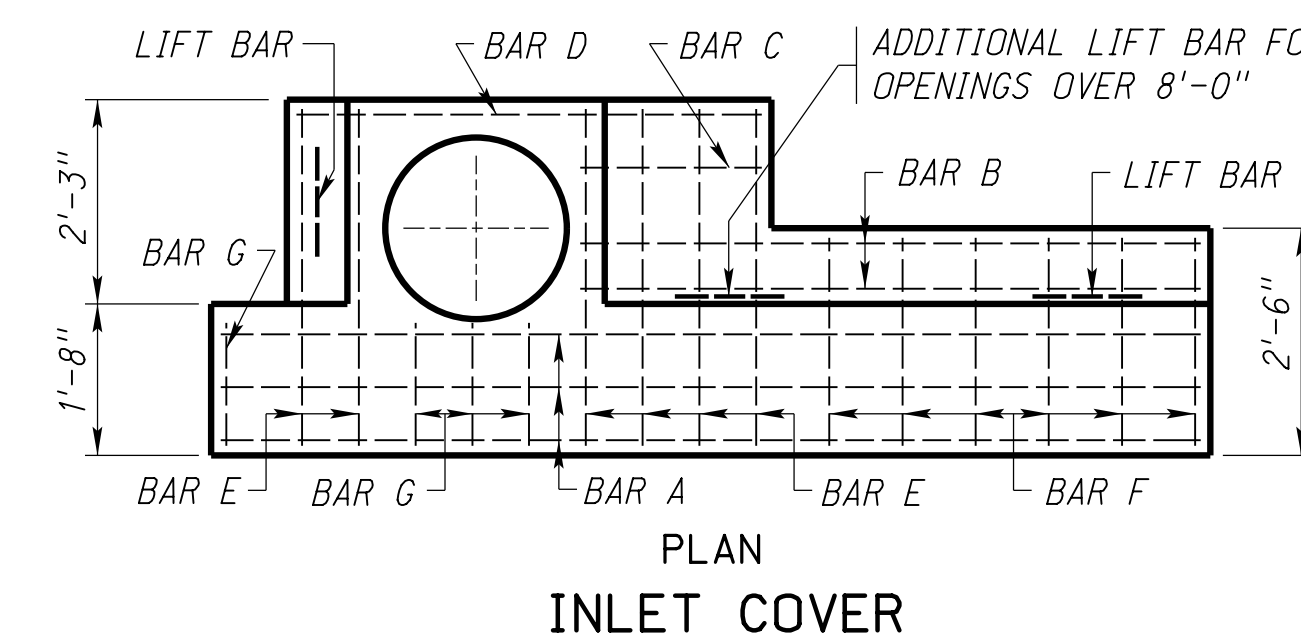
ORIGINAL:  
FEBRUARY 22, 1974  
DATE



INLET COVER

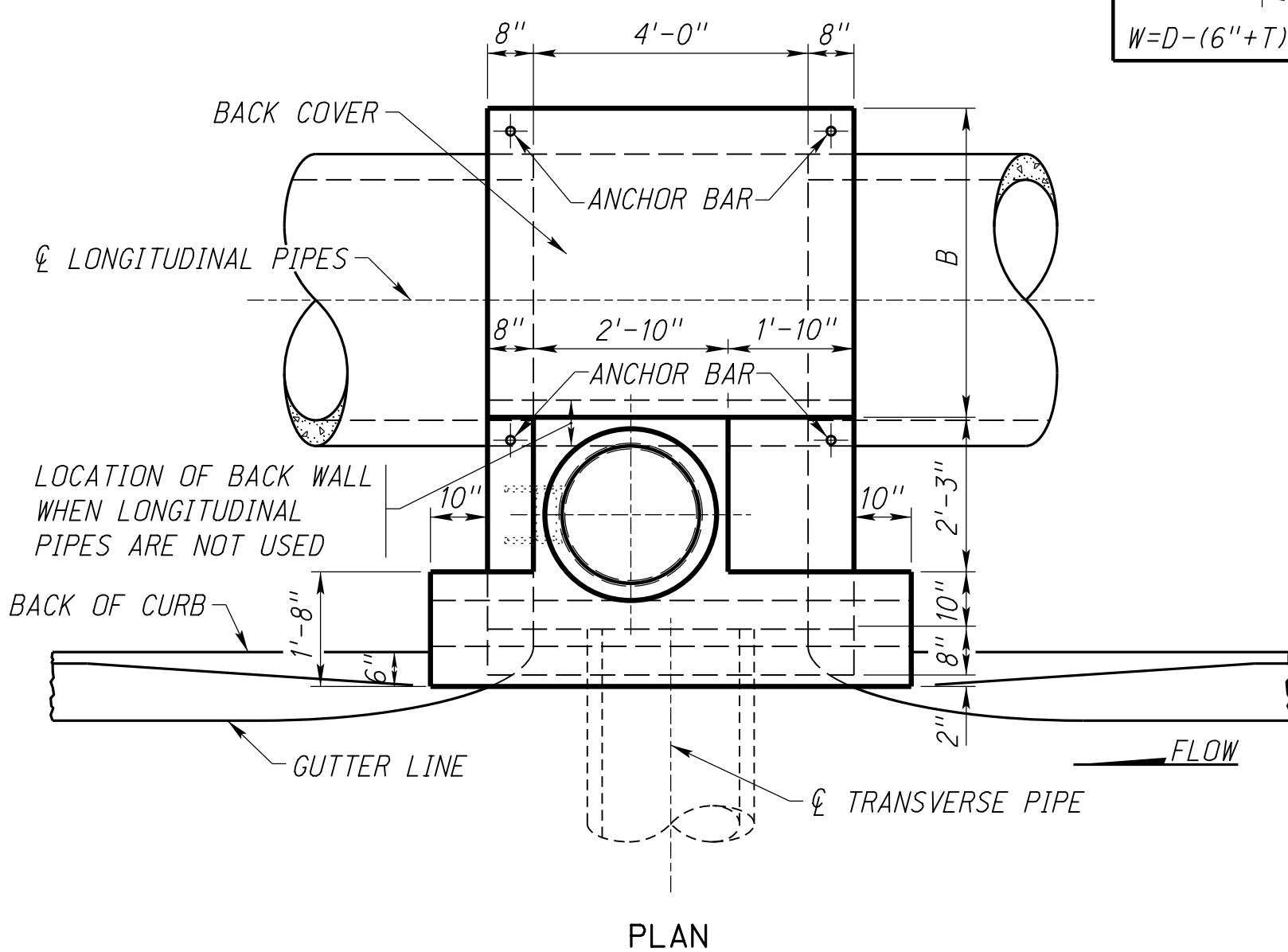


REINFORCING BAR BENDING DIAGRAM FOR CURB INLET

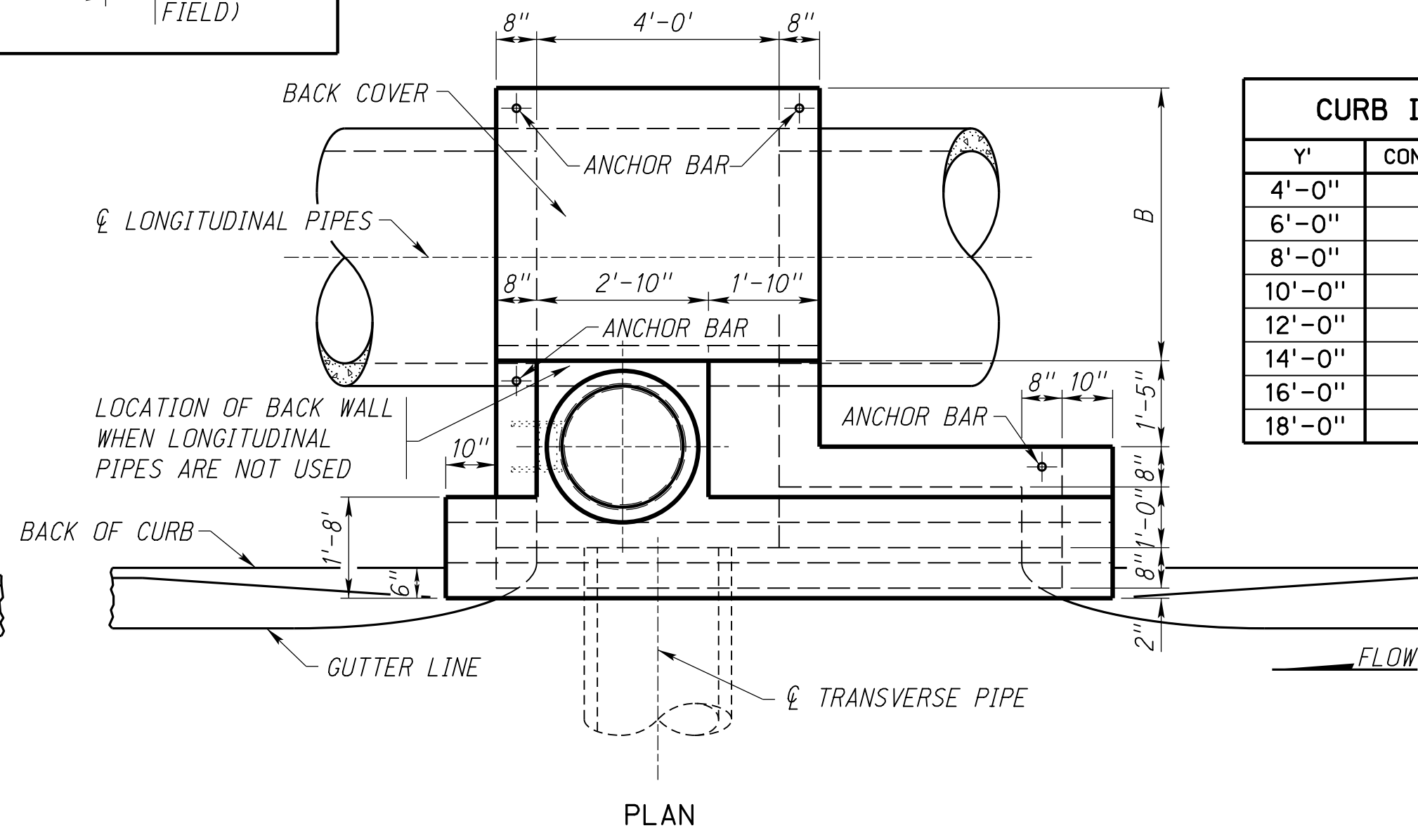


INLET COVER

BAR	SIZE	SHAPE	Y = 4'-0"		Y = 6'-0"		Y = 8'-0"		Y = 10'-0"		Y = 12'-0"		Y = 14'-0"		Y = 16'-0"		Y = 18'-0"	
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
A	8	STR.	3	6'-9"	3	8'-9"	3	10'-9"	3	12'-9"	3	14'-9"	3	16'-9"	3	18'-9"	3	20'-9"
B	6	STR.	---	---	2	4'-10"	2	6'-10"	2	8'-10"	2	10'-10"	2	12'-10"	2	14'-10"	2	16'-10"
C	6	STR.	3	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"	1	2'-0"
D	6	STR.	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"	1	5'-1"
E	5	BENT	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"	6	4'-0"
F	5	BENT	---	2'-7"	3	2'-7"	6	2'-7"	8	2'-7"	11	2'-7"	13	2'-7"	16	2'-7"	18	2'-7"
G	5	BENT	5	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"	4	1'-7"
H	4	BENT	---	---	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"	10	W+4'-0"
J	4	STR.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K	4	STR.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
LIFT	4	BENT	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"	VAR.	2'-6"
M	4	STR.	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"	VAR.	5'-1"
N	4	STR.	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3	8	B-3

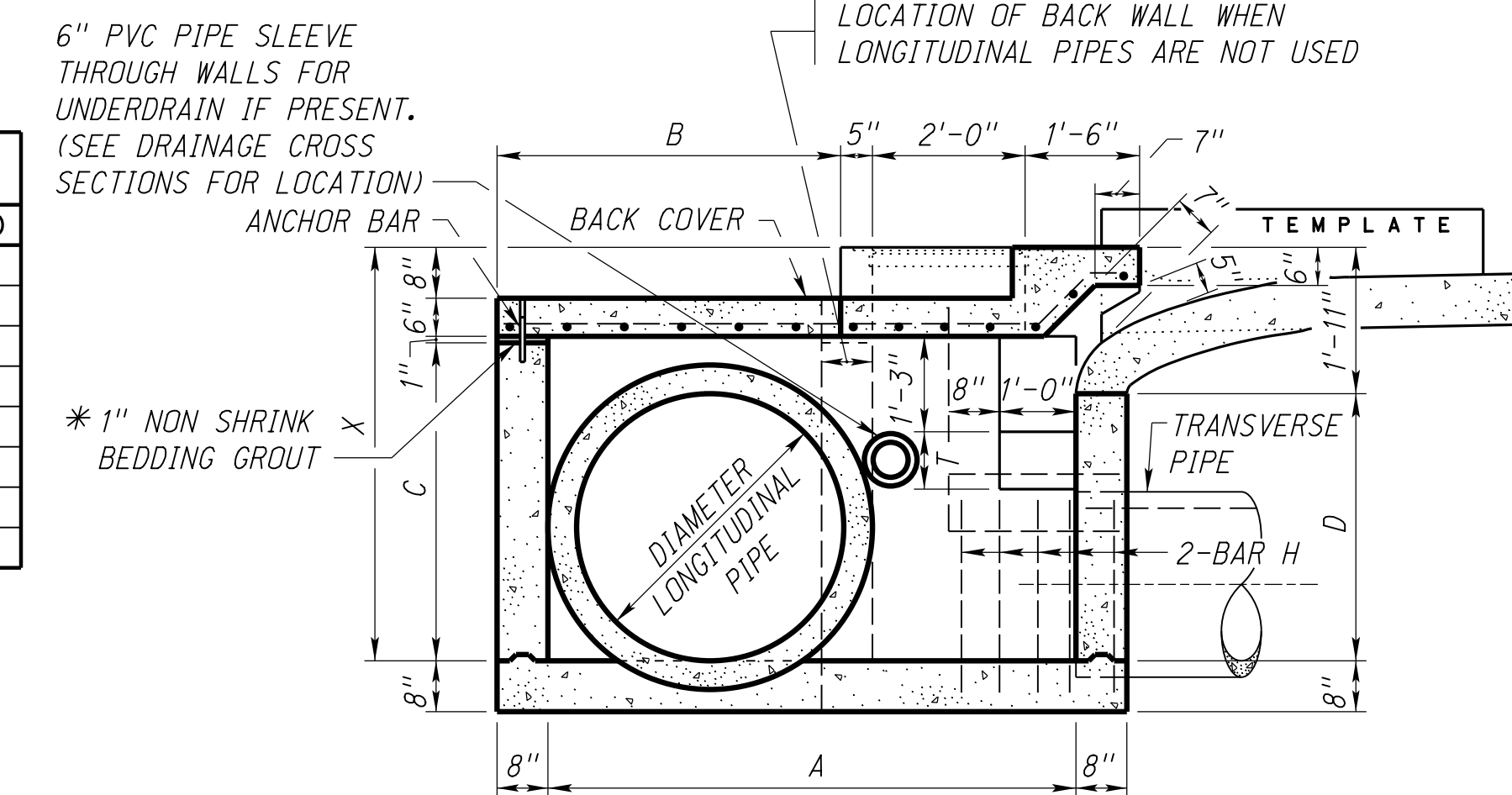


PLAN



PLAN

Y'	CONCRETE (CU. YDS.)	REINFORCING (LB.)
4'-0"	0.62	46
6'-0"	0.72	58
8'-0"	0.82	71
10'-0"	0.92	83
12'-0"	1.02	95
14'-0"	1.12	112
16'-0"	1.22	122
18'-0"	1.32	136



TYPICAL SECTION OF INLETS

\* GROUT SHALL BE FINISHED SUCH THAT THE TOP ELEVATION OF THE INLET LID, WHEN INSTALLED, MATCHES THE FINISHED SHOULDER SLOPE OF THE ROADWAY CROSS-SECTIONS.

NOTES:  
THE MINIMUM COVERING, MEASURED FROM THE FACE OF CONCRETE TO THE SURFACE OF ANY REINFORCING BAR, SHALL BE 1/2".

THE QUANTITIES OF CONCRETE AND STEEL FOR CURB INLET INCLUDES THAT PORTION OF CONCRETE AND STEEL BELOW AND BACK OF THE CURB SECTION AS SHOWN ON THIS PLAN.

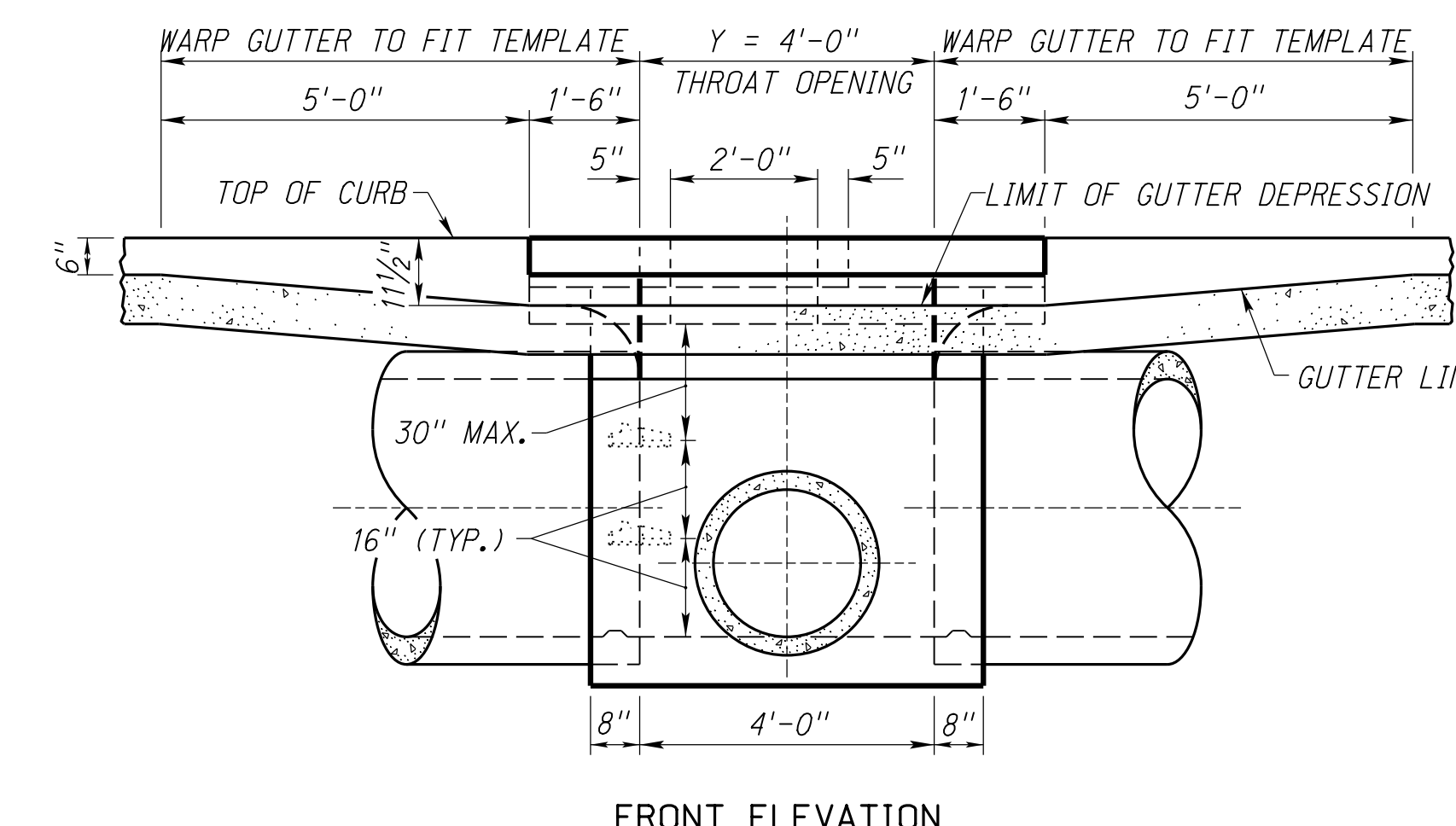
THE CONCRETE COVERS MAY BE CAST IN PLACE OR PRECAST.

THE CAST IRON COVERS, FRAMES SHALL BE GREY IRON CONFORMING TO THE SPECIFICATIONS. CAST IRON STEPS SHALL BE INSTALLED IN CURB INLETS AND JUNCTION BOXES WHEN THE "X" DIMENSION IS 4'-6" OR GREATER. THE FURNISHING AND PLACING OF CAST IRON STEPS SHALL BE SUBSIDIARY TO THE ITEM FOR WHICH DIRECT PAYMENT IS MADE.

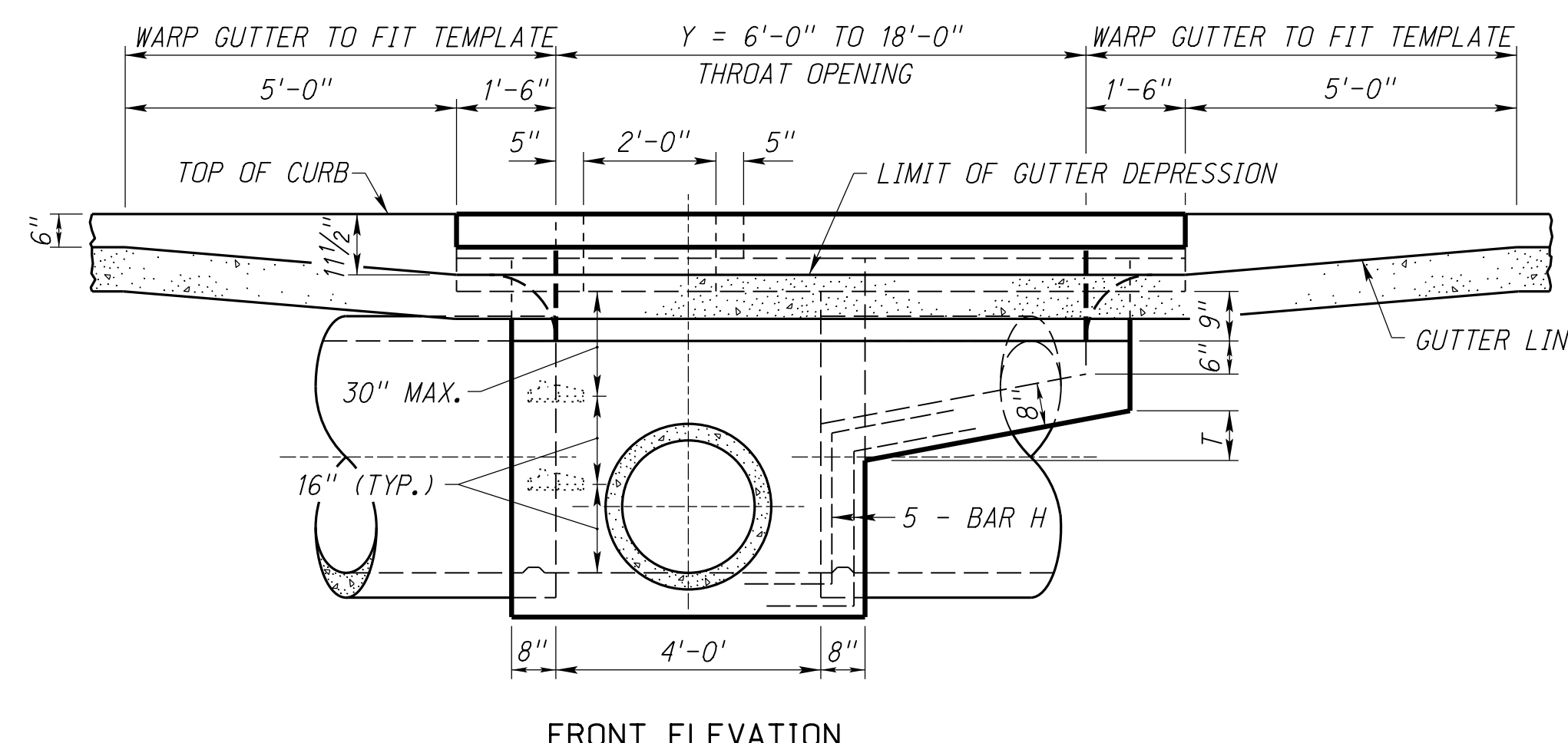
THE GUTTER DEPRESSION TEMPLATE SHALL BE USED THROUGHOUT THE THROAT OPENING.

CLASS OF CONCRETE AND MINIMUM COMPRESSIVE STRENGTH AND TYPE OF STEEL FOR REINFORCING BARS SHALL CONFORM TO THE NDOT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION."

THE INLET COVER SHALL BE IMPRINTED "NO DUMPING" SEE SHEET 2 OF 2.



FRONT ELEVATION



FRONT ELEVATION

DATA FOR CURB INLETS (INCLUDES INLET COVER)

DIA. OF LONGIT. PIPE	DIMENSIONS					QUANTITIES																	NO. OF M BARS	ADDITIONAL QUANTITIES PER ONE FOOT INCREASE OF DIMENSION "X"	
	X (MIN.)	A	B	C	D	CONCRETE, CU. YDS. (3)									REINFORCING STEEL, LBS.									CONCRETE CU. YDS.	REINF. STEEL LBS. (4)
						Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'	Y=4'	Y=6'	Y=8'	Y=10'	Y=12'	Y=14'	Y=16'	Y=18'				
12"	3'-11"	2'-8"	---	2'-8"	2'-0"	2.08	2.43	2.79	3.15	3.51	4.06	4.46	4.85	113	175	202	231	259	289	316	344	NONE	0.383	6.7	
15"	3'-2"	4'-0"	1'-7"	1'-8"	1'-0"	2.14	2.51	2.86	3.21	3.56	3.95	4.30	4.65	133	186	216	245	274	310	340	364	3	0.459	6.7	
18"	3'-5"	4'-7"	1'-11"	1'-11"	1'-3"	2.37	2.71	3.07	3.43	3.79	4.21	4.57	4.94	136	193	221	250	277	312	342	370	3	0.473	6.7	
21"	3'-8"	5'-2"	2'-2"	2'-2"	1'-6"	2.60	2.95	3.30	3.67	4.03	4.44	4.80	5.16	141	200	228	257	284	318	349	376	4	0.490	6.7	
24"	3'-11"	5'-9"	2'-9"	2'-9"	1'-9"	2.83	3.19	3.53	3.90	4.26	4.68	5.04	5.40	144	203	231	260	287	322	351	379	4	0.504	6.7	
27"	4'-2"	6'-4"	3'-4"	3'-4"	2'-0"	3.06	3.41	3.76	4.12	4.49	5.04	5.43	5.83	148	210	238	267	294	324	352	379	5	0.518	6.7	
30"	4'-5"	7'-0"	4'-1"	4'-1"	2'-3"	3.31	3.66	4.01	4.37	4.74	5.29	5.68	6.08	150	213	241	270	297	327	354	382	5	0.532	6.7	
36"	5'-1"	8'-0"	4'-8"	4'-8"	3'-0"	4.06	4.41	4.77	5.13	5.49	6.04	6.44	6.83	158	226	254	283	310	340	368	395	6	0.576	6.7	
42"	5'-5"	9'-0"	5'-4"	5'-4"	3'-6"	4.60	4.95	5.31	5.67	6.03	6.58	6.98	7.38	164	236	264	293	320	350	378	405	7	0.605	6.7	
48"	5'-11"	10'-0"	6'-0"	6'-0"	4'-0"	5.18	5.53	5.89	6.25	6.61	7.16	7.56	7.95	171	246	274	303	330	360	387	415	8	0.634	6.7	
54"	6'-5"	11'-0"	6'-7"	6'-7"	4'-6"	5.78	6.13	6.49	6.85	7.21	7.76	8.16	8.56	174	253	280	309	337	367	394	421	8	0.663	6.7	
60"	6'-11"	12'-0"	7'-3"	7'-3"	5'-0"	6.41	6.76	7.12	7.48	7.84	8.39	8.79	9.19	180	262	290	319	346	376	404	431	9	0.691	6.7	
66"	7'-5"	13'-0"	8'-0"	8'-0"	5'-6"	7.07	7.42	7.78	8.14	8.50	9.05	9.45	9.85	187	272	300	329	356	386	414	441	10	0.720	6.7	

T = 9" EXCEPT FOR THE FOLLOWING:  
T = 6" FOR 6'-0" TO 18'-0" OPENINGS WHEN X = 2'-11" THRU 3'-1"  
T = 1'-6" FOR 14'-0" TO 18'-0" OPENINGS WHEN X = 3'-11" THRU 7'-5"

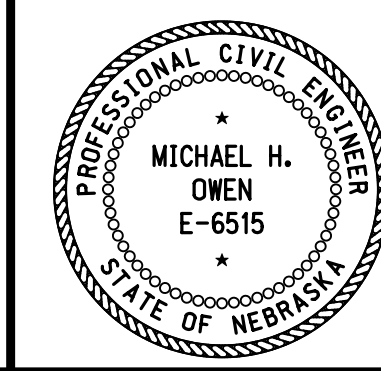
- ① "X" SHALL NOT EXCEED 7'-6".
- ② "A" SHALL NOT EXCEED 10'-0".
- ③ NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS.
- ④ NOT APPLICABLE WHERE Y = 4'-0".

DIAMETER OF PIPE AND MINIMUM "X" IN THIS INLET DATA TABLE ARE BASED ON THE LONGITUDINAL PIPE. DEPTH OF THE INLET MAY BE GOVERNED BY THE TRANSVERSE PIPE (MINIMUM "D" = TRANSVERSE PIPE DIAMETER PLUS 9").

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

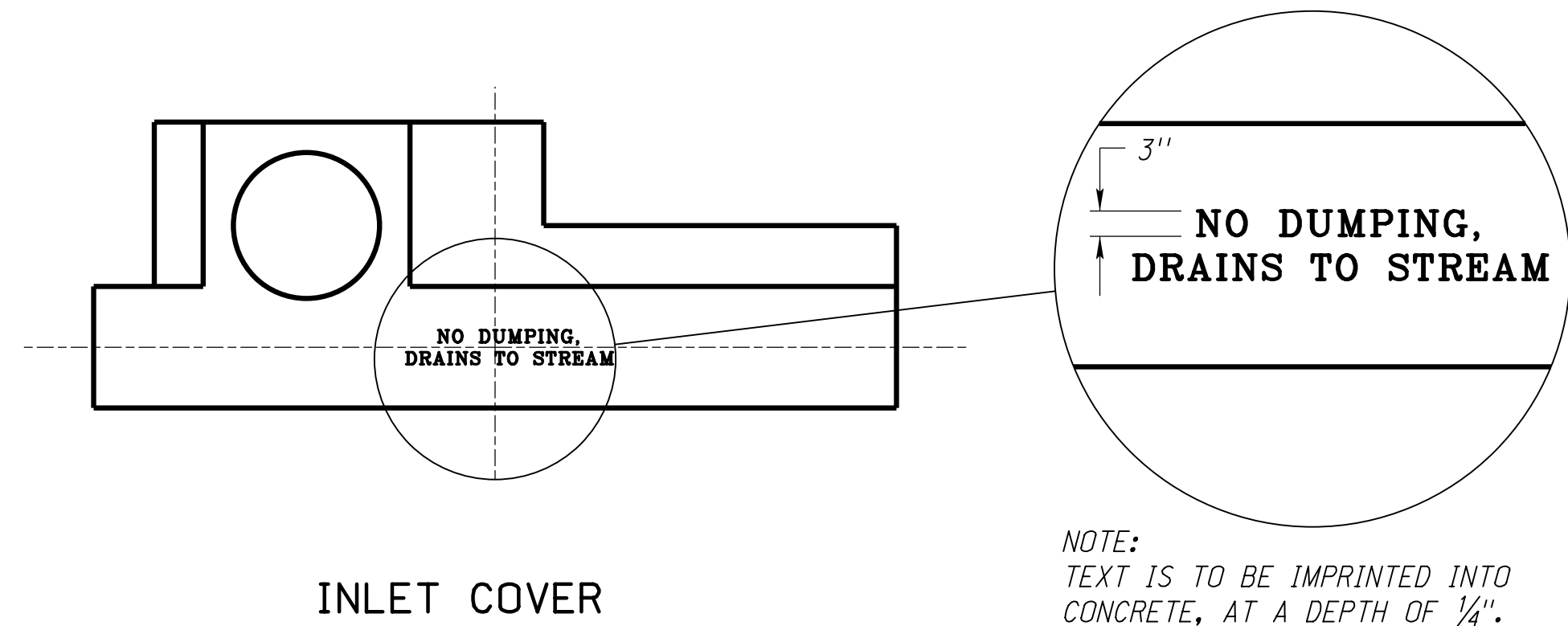
NEBRASKA DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN NO. 443-R12  
**CURB INLETS AND JUNCTION BOX**

ACCEPTED BY FHWA FOR USE ON THE NATIONAL HIGHWAY SYSTEM:



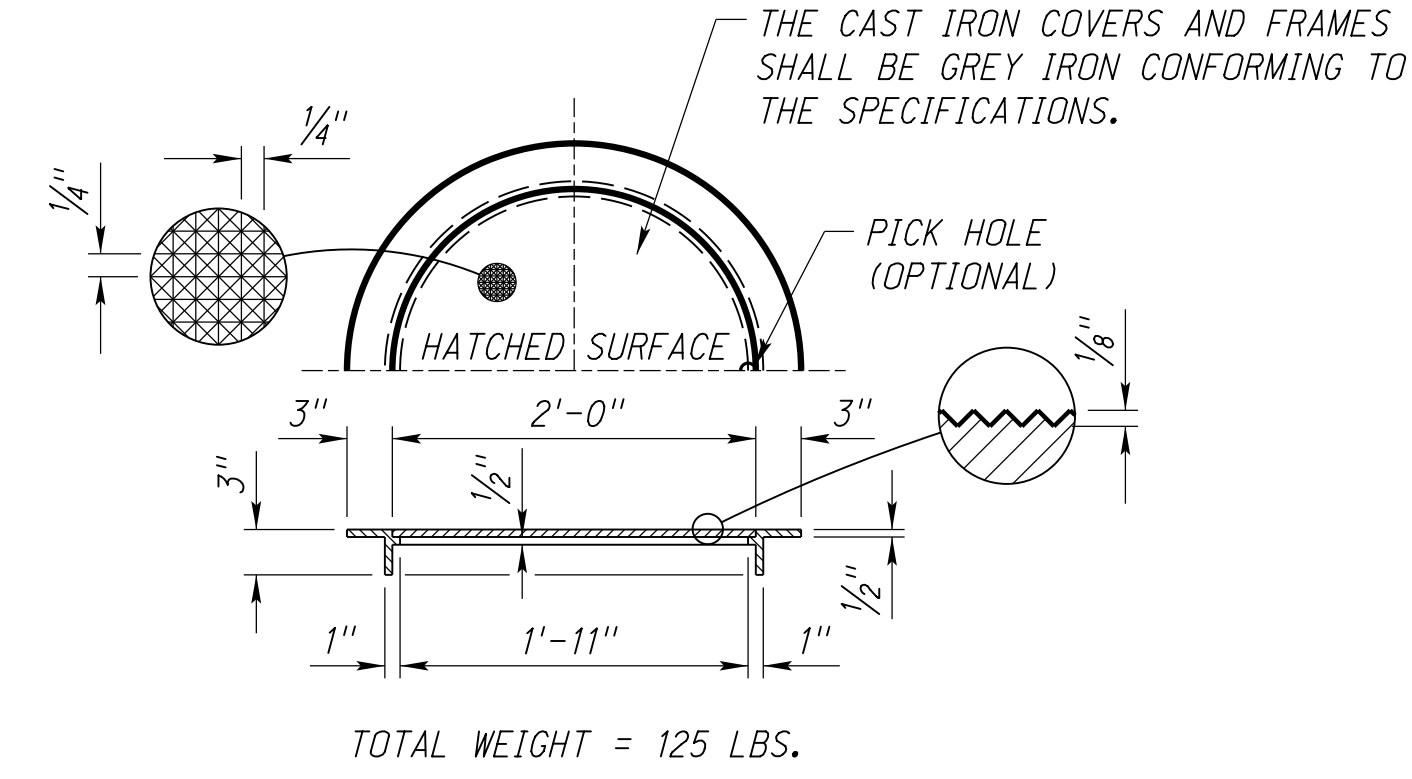
DATE  
ORIGINAL:  
FEBRUARY 22, 1974  
DATE

1  
2



**INLET COVER**

NOTE:  
TEXT IS TO BE IMPRINTED INTO  
CONCRETE, AT A DEPTH OF 1/4".

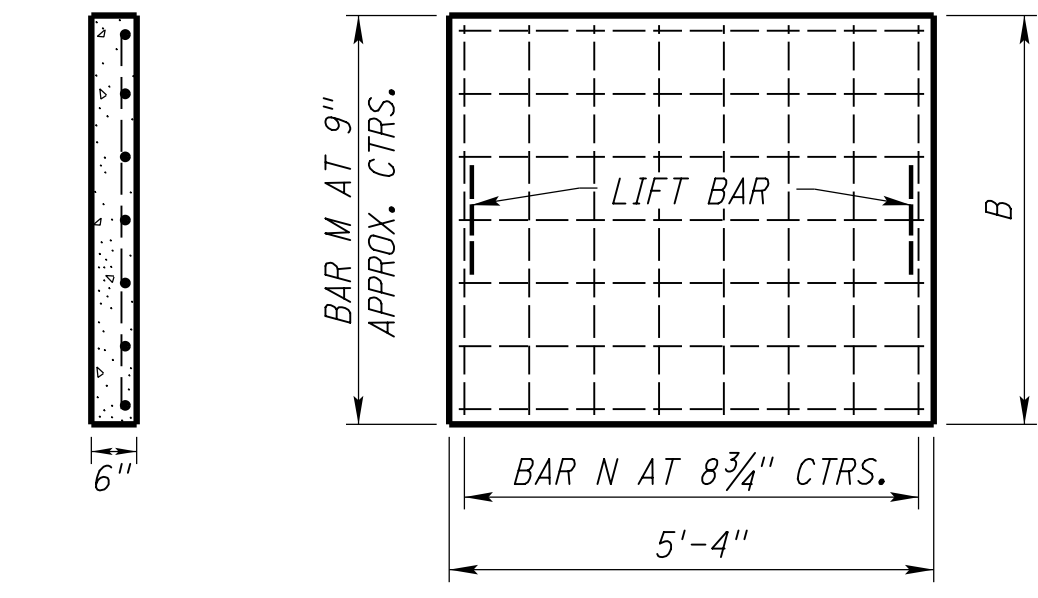


**CAST IRON COVER AND FRAME  
FOR JUNCTION BOX AND CURB INLET**

TOTAL WEIGHT = 125 LBS.

SIZE Y x Y <sub>1</sub>	X = 2'-6"		ADDITIONAL QUANTITIES OF CONCRETE (CU. YDS.) PER ONE FOOT INCREASE OF DIMENSIONS "X" **
	CONCRETE CU. YDS. *	REINFORC. STEEL LBS.	
2'-0" x 2'-0"	0.94	15	0.26
2'-0" x 2'-6"	1.06	18	0.27
2'-0" x 3'-0"	1.18	23	0.31
2'-6" x 2'-6"	1.20	19	0.31
2'-6" x 3'-0"	1.33	22	0.34
3'-0" x 3'-0"	1.47	29	0.36
3'-0" x 3'-6"	1.61	30	0.39
3'-0" x 4'-0"	1.76	34	0.41

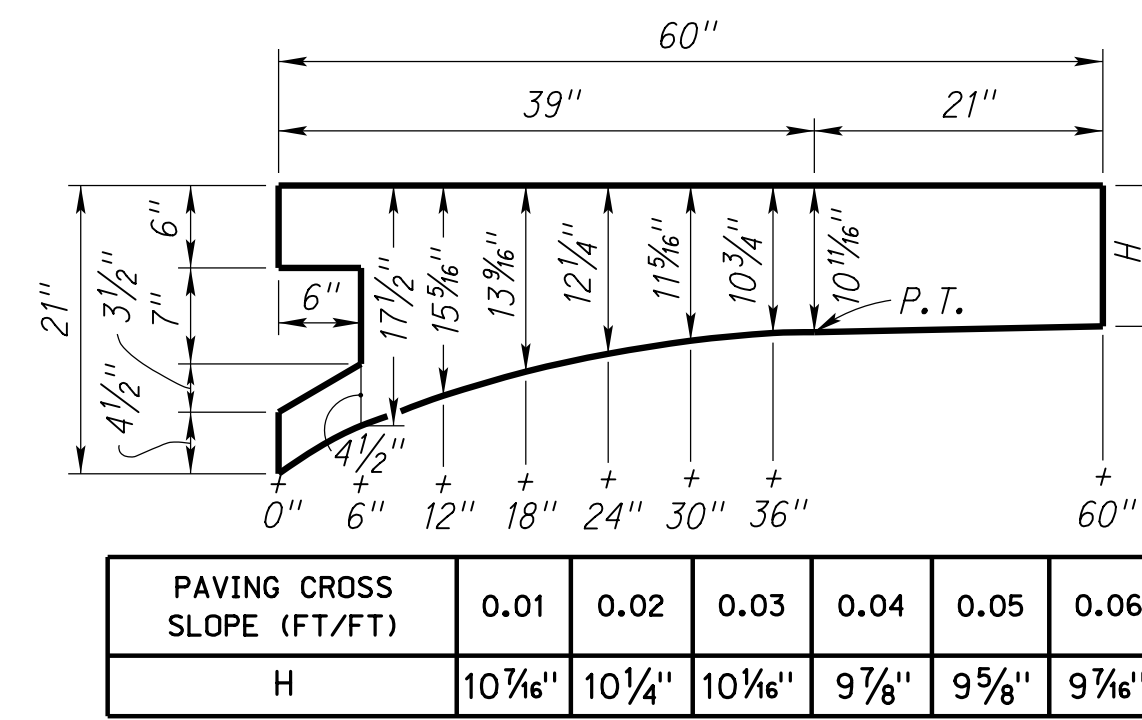
\* NO DEDUCTIONS WILL BE MADE FOR PIPE OPENINGS  
\*\* DIMENSION "X" SHALL NOT EXCEED 5'-6"



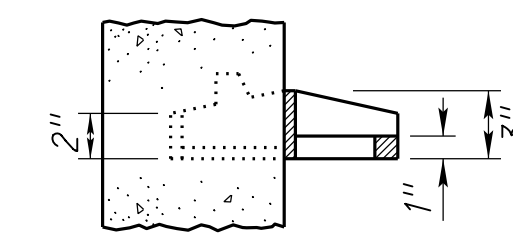
SECTION

PLAN

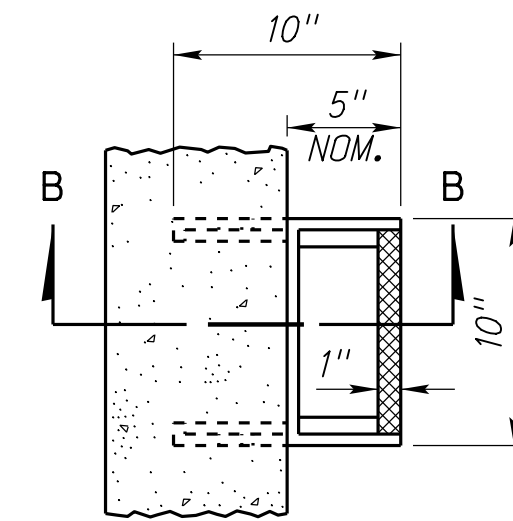
**BACK COVER**



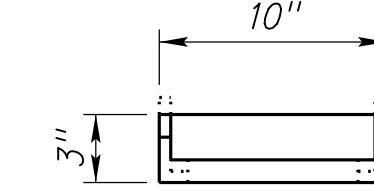
**GUTTER DEPRESSION TEMPLATE**



SECTION B-B

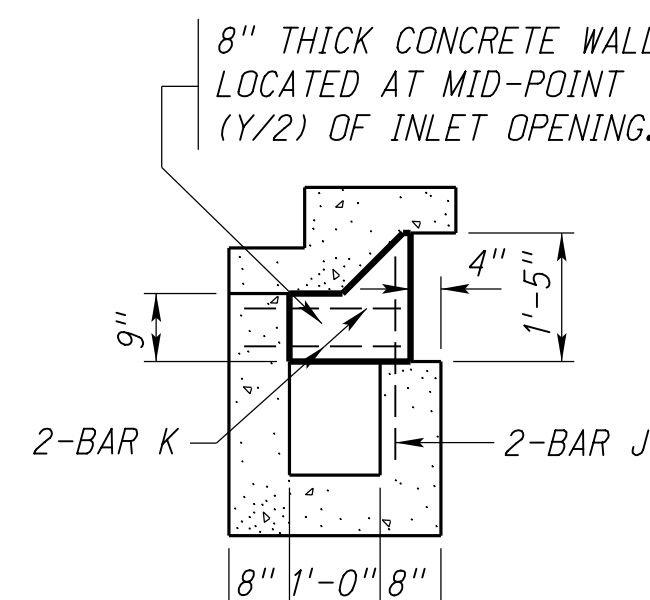


PLAN



FRONT ELEVATION

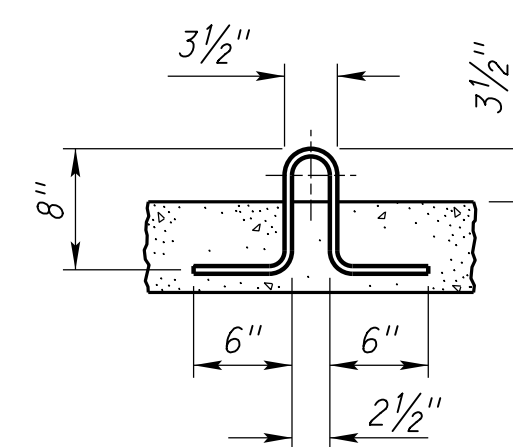
STEPS TO BE PLACED AT 16" CENTERS  
**CAST IRON STEPS**



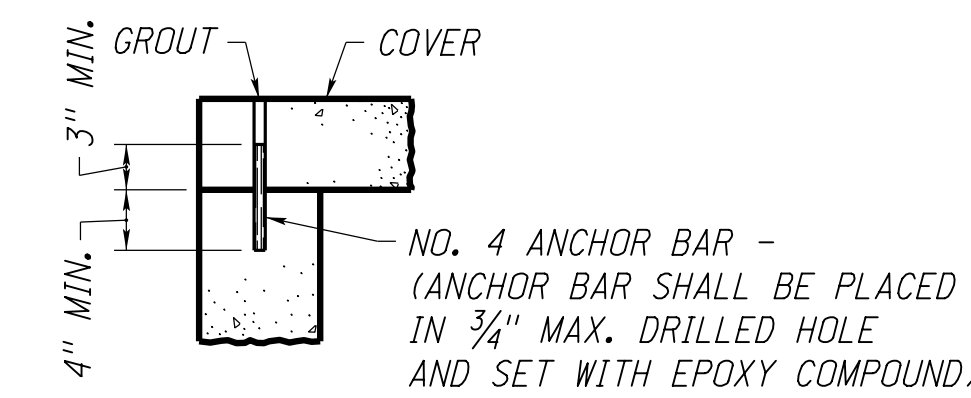
SECTION

FOR 14'-0", 16'-0" &  
18'-0" INLET OPENINGS

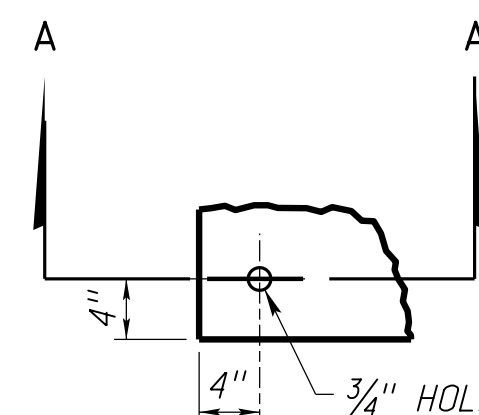
**MID-POINT  
COVER SUPPORT**



**LIFT BAR**

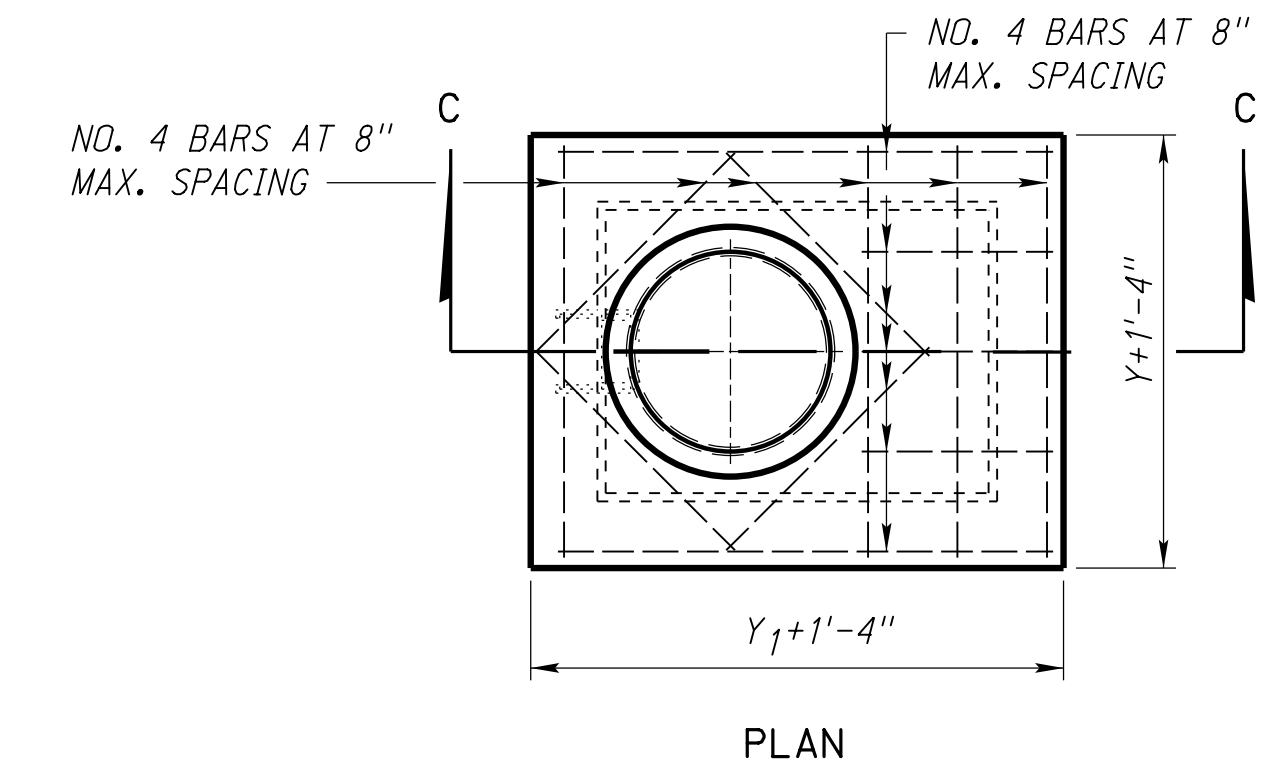


SECTION A-A

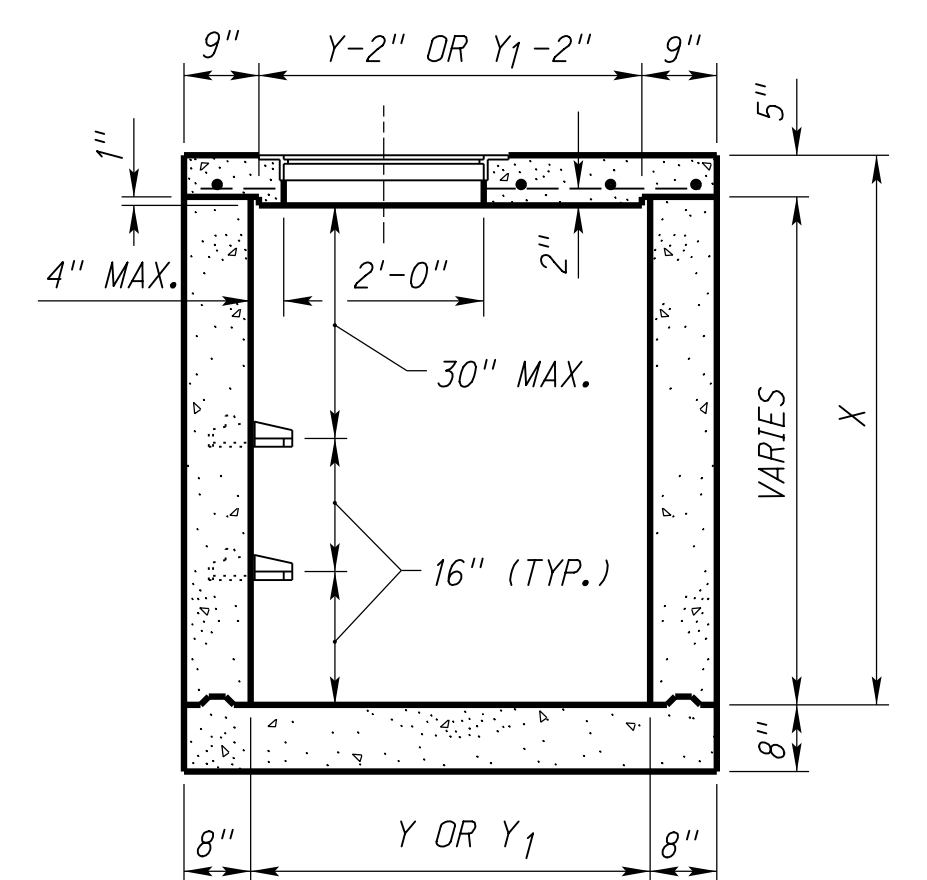


PLAN

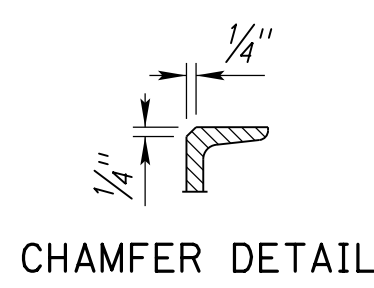
**ANCHOR BAR**



PLAN

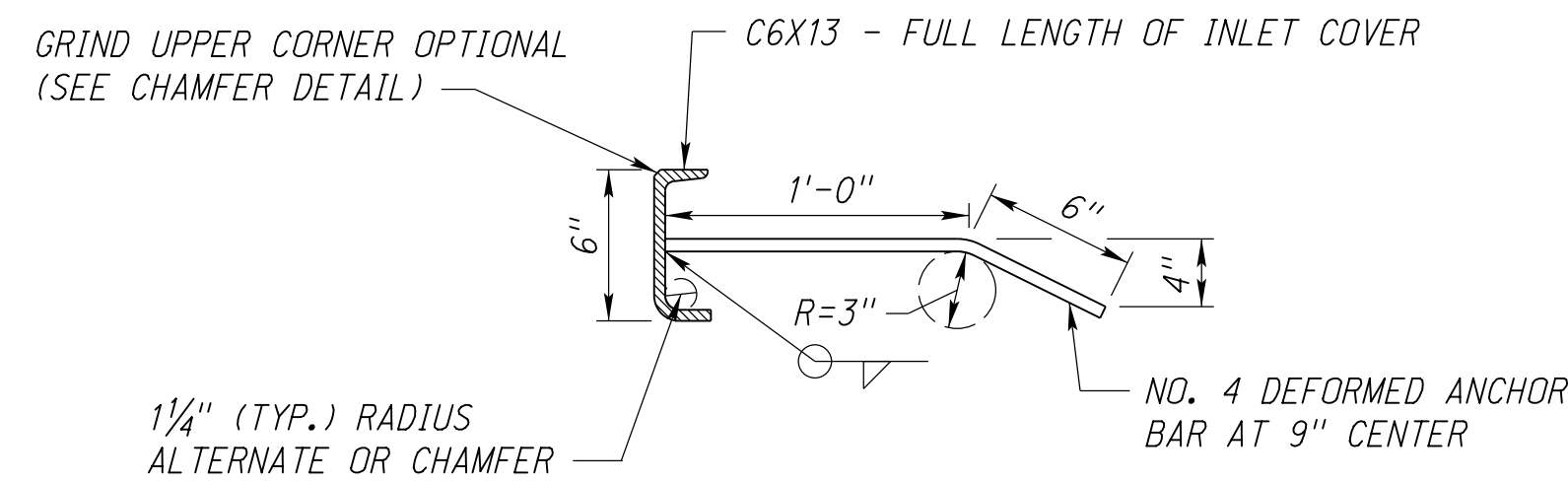


SECTION C-C  
**JUNCTION BOX**  
(NOT FOR USE UNDER TRAFFIC)



CHAMFER DETAIL

STRUCTURAL STEEL FOR FACE ARMOR	
THROAT OPENING	WEIGHT (LBS.)
4'-0"	100
6'-0"	129
8'-0"	157
10'-0"	186
12'-0"	215
14'-0"	243
16'-0"	272



**FACE ARMOR**

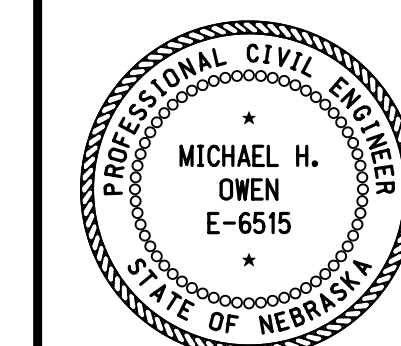
NOTE:

THE COMPLETED FACE ARMOR/ANCHOR BAR ASSEMBLY SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.

REV. NO.	DATE	DESCRIPTION OF REVISION
R12	JUL 20	ADDED UNDERDRAIN NOTE & TABLE
R11	JAN 18	NDOR BORDER TO NDOT BORDER
R10	DEC 16	CHANGED TABLE INFORMATION

NEBRASKA DEPARTMENT OF TRANSPORTATION  
STANDARD PLAN NO. 443-R12  
**CURB INLETS  
AND JUNCTION BOX**

ACCEPTED BY FHWA FOR USE ON THE  
NATIONAL HIGHWAY SYSTEM:



DATE \_\_\_\_\_  
ORIGINAL:  
FEBRUARY 22, 1974  
DATE \_\_\_\_\_

2  
2